A/73/5 (Vol. V)

United Nations

Report of the Board of Auditors

for the year ended 31 December 2017

Volume V
Capital master plan

General Assembly
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United Nations • New York, 2018

Note

Symbols of United Nations documents are composed of letters combined with figures. Mention of such a symbol indicates a reference to a United Nations document.

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Letter of transmittal

Letter dated 24 July 2018 from the Chair of the Board of Auditors addressed to the President of the General Assembly

I have the honour to transmit to you the report of the Board of Auditors on the capital master plan for the year ended 31 December 2017.

(*Signed*) Rajiv **Mehrishi**
Comptroller and Auditor General of India
Chair of the Board of Auditors

Capital master plan: key facts

$2,309.3 million	Anticipated final cost of the capital master plan (excluding the renovation of the Dag Hammarskjöld Library and South Annex Buildings)
Scope	
Secretariat Building	Completed in September 2015
General Assembly Building	Completed in October 2015
Conference Building	Completed in March 2013
Library and South Annex Buildings	Removed from scope of capital master plan in March 2015
Demolition of temporary North Lawn Building	Completed in February 2017
Landscaping of North Lawn	Completed in September 2017
Security-related works at 42nd Street	Completed in February 2017
Security-related works at 48th Street	Completed in September 2017

Summary

Background

1. The capital master plan is a complex, high-value project to modernize and improve the operating efficiency of the United Nations Headquarters buildings without compromising day-to-day operations. The General Assembly approved the project in 2002 (see resolution 57/292) with an initial budget of $1,877 million and an expected delivery date of November 2013. The main buildings were completed in October 2015, according to data provided by the Administration.

2. Once substantially completed in September 2014, the main buildings were reoccupied by United Nations staff and responsibility for the operation and maintenance of the campus was transferred to the Office of Central Support Services in the Department of Management. The construction work related to the remaining activities of the project was completed in September 2017. Final administrative closure of the project and all related contracts was expected by 31 December 2017; however, in view of the ongoing litigation cases, the Administration delayed the closure of the capital master plan account until the conclusion of the litigation cases.

3. Major benefits expected from the investment included a more modern, energy-efficient, safe and accessible working environment.

Scope of the report

4. In its resolution 57/292, the General Assembly requested an annual report from the Board of Auditors on the capital master plan. This fifteenth annual report of the Board on the project assesses the project's status as at 31 March 2018. The present report focuses on:

(a) Financial status of the project (see sect. B);

(b) Project schedule and scope (see sect. C);

(c) Managing the campus (see sect. D);

(d) Maximizing the benefits of the renovated campus (see sect. E);

(e) Recreational facilities (see sect. F).

5. The audit was performed from 19 March to 13 April 2018. The present report has been prepared on the basis of the information available at the time of audit.

Key findings

Financial status of the project

6. **The main contractor has filed two notices of arbitration against the United Nations seeking indemnification in the event it is required to settle substantial claims from its subcontractors.** If the claims against the United Nations are upheld, the final project cost would increase by the settlement amount. The Administration has retained external legal counsel to defend its interests in the dispute between the contractors. Both cases are at an initial stage of arbitration. The Administration also informed the Board that closure of the capital master plan project is directly related to the conclusion of the arbitration cases.

7. The Board observed that, against the initial project budget of $4 million for the reconfiguration and refurbishment of the Dag Hammarskjöld Library Building, the actual cost was $2.8 million. The Board further noted that no expenditures were made with respect to security/signage, acceleration/expediting and project contingency, for

which the approved budgets were $40,000, $150,000 and $363,636, respectively. Similarly, in work related to the third basement classroom of the North Lawn Building, no expenditures were made with respect to acceleration/expediting and project contingency, for which the approved budgets were $75,000 and $409,494, respectively.

Managing the campus

8. An Umoja module on preventative maintenance was implemented in October 2017 for all mechanical, electrical and plumbing equipment installed by the capital master plan as well as for selected legacy systems. The Board noted that the report on maintenance actions during February and March 2018 had to be created from raw data and was very time-consuming to produce. **The Board also noted that the Umoja plant maintenance module was not designed to have a utility to compile the necessary monthly details/summary of maintenance actions. This limitation would impact the Administration's ability to take informed preventive measures.**

9. During the physical verification conducted in 2017, of 1,555 assets physically verified, the Administration was unable to locate 266 assets (17.11 percent) having an acquisition value of $4.68 million. **The Administration informed that as at March 2018, 99 assets were still to be located and 25 assets were in the process of being written off.**

10. Maintenance of the gift registry, as was required by the General Assembly in its resolution 63/270, was not complete. The Board also noted that an annual physical verification of the art and gifts was not being done.

Recreational facilities

11. The International Olympic Committee had provided financial contributions as a donation towards the construction of recreational facilities at United Nations Headquarters. **The Administration budgeted for cleaning costs only and did not budget for maintenance costs and funding for the maintenance of the recreational facilities beyond seven years. As a result, the facilities are not cost neutral and, according to regulation 3.12 and rule 103.4 (b) of the Financial Regulations and Rules of the United Nations, the acceptance of donations that are not cost neutral requires prior approval from the General Assembly.**

Overall conclusion

12. The capital master plan is in its final phase after nearly 16 years and an investment of $2,309.3 million. The impact of unforeseen events and a history of inaccurate cost estimates have contributed to significant cost and time overruns over the life of the project. All procurement actions have been finalized and construction works completed, and the final completion of residual capital works and activities was achieved in September 2017. However, the close-out of the project by the Administration is delayed as a result of pending arbitration claims.

Main recommendations

13. The Board recommends that the Administration:

Financial status of the project

(a) **Review the methodology followed for the preparation of estimates to establish norms for the common/general nature of expenses in order to ensure that the estimates for projects are realistic;**

Managing the campus

(b) Develop a business intelligence report for maintenance actions in the Umoja plant maintenance module;

(c) Maintain an updated list/registry of art and gifts and carry out their physical verification annually to obtain an assurance about their existence;

Recreational facilities

(d) Conduct a comprehensive assessment of maintenance costs, taking into account all subcomponents of maintenance, such as repair and upkeep of the recreational facilities;

(e) Make adequate arrangements for funding the operational and maintenance costs of assets created as a result of the donation from the International Olympic Committee.

A. Background

The project and its objectives

1. The capital master plan is a complex, high-value project to modernize, secure and preserve the United Nations Headquarters campus in New York without compromising day-to-day operations. The approved scope of the project included:

- Renovating five major buildings[1] as well as the extensive basement complex
- Constructing a temporary secure building on the North Lawn to house certain activities during their renovation, and demolishing it after the completion of their renovation
- Transferring staff to and back from temporary office space across New York City, involving more than 10,000 staff moves

2. The expected project outcome (see A/55/117, para. 2) was a Headquarters campus which:

- Is energy-efficient, free of hazardous materials and compliant with the building, fire and safety codes of the host city
- Provides full accessibility to all persons
- Meets all reasonable, modern-day security requirements
- Preserves the original architecture to the greatest extent possible

3. The General Assembly approved the original objectives of the project in 2002 (see resolution 57/292) and the original budget of $1,876.7 million in 2006 (see resolution 61/251) with a project period from 2006 to 2014. In 2007 (see resolution 62/87), an accelerated strategy was adopted, which increased costs but reduced the period of renovation to minimize disruption to United Nations operations. In April 2015, the Library and South Annex Buildings were formally removed from the scope of the project (see resolution 69/274 A) owing to financial and security concerns.

4. The Under-Secretary-General for Management is the owner of the project. In 2003, the United Nations established the Office of the Capital Master Plan to manage the delivery of the project, working with other parts of the Administration.

Developments since the Board last reported

5. Since the Board last reported:

- The anticipated final cost of the capital master plan project, excluding the renovation of the Dag Hammarskjöld Library and the South Annex Buildings, has remained largely unchanged at $2,309.3 million.
- Associated landscaping work which was due to be completed by November 2016 was completed by September 2017.
- Work related to the 42nd and 48th Street Service Drive entrances, which was due for completion by December 2016, was completed by February 2017 and September 2017, respectively.

[1] Secretariat Building, Conference Building, General Assembly Building, South Annex Building and Dag Hammarskjöld Library Building.

Previous recommendations

6. Of the 16 outstanding recommendations contained in the Board's reports up to the year ended 31 December 2016, 4 (25 per cent) have been implemented and 12 (75 per cent) remain under implementation. Annex I summarizes the actions taken in response to the Board's previous recommendations in more detail.

B. Financial status of the project

7. The final cost of the capital master plan, excluding the renovation of the Dag Hammarskjöld Library and South Annex Buildings, is $2,309.3 million. This amount consists of the following three sub-elements:

- Project costs of $2,150.4 million, comprising appropriations for the original project scope of $1,876.7 million, donations of $14.3 million, interest income and the plan's working capital reserve amounting to $159.4 million and $100.0 million in funding for the enhanced security upgrades
- Associated costs and the cost of the secondary data centre borne by the capital master plan in the amount of $154.7 million, appropriated from the General Fund (see resolution 69/274 A)
- Support account contributions in the amount of $4.2 million for the secondary data centre

8. Two post-renovation activities, namely, North Lawn Conference Building demolition and landscaping and work related to the 42nd and 48th Street Service Drive entrances, with an initial estimated cumulative cost of $35 million, have been completed at a cost of $37.28 million, compared with last year's forecast of $37.30 million.

Budget

Cost changes

9. The estimated final cost of the capital master plan project remains unchanged at $2,150.4 million. As at 31 July 2017, the cumulative expenditure incurred amounted to $2,148.1 million, indicating that 99.9 per cent of the estimated cost of completion has been expended and committed.

Costs of post-renovation works

10. The estimated and final costs of residual capital works and interim solutions are presented in table 1.

Table 1
Estimated and final costs of residual capital works and interim solutions

(Millions of United States dollars)

Activities	*Estimate, 2015*	*Forecast, 2016*	*Forecast, 2017*	*Actual expenditure, 2017*
Alternative food services	5.00	4.30	3.60	3.64
Dag Hammarskjöld Library[a]	4.00	3.10	2.80	2.83
North Lawn third basement classroom	5.00	5.10	5.30	5.33
Total interim solutions	**14.00**	**12.50**	**11.70**	**11.80**
Demolition and landscaping	20.00	19.00	19.40	19.23
Security-related works at 42nd and 48th Streets	15.00	17.10	17.90	18.05
Total residual works	**35.00**	**36.10**	**37.30**	**37.28**

Source: Administration data.

[a] Consisting of limited reconfiguration and refurbishment as an interim solution.

11. At the time of the Board's previous report (A/72/5 (Vol. V)), the estimated cost of interim solutions for the Library and South Annex Buildings, together with work on the third basement, was $11.70 million, and the estimated cost for residual capital works was $37.30 million. The Board observed that the final cost of the project showed a minor increase of $0.10 million in the interim solutions for functions previously located in the Library and South Annex Buildings, while there was a slight decrease of $0.02 million in the estimated cost of work on the total residual works. Thus, there was an overall increase of $0.08 million.

12. The Board noted that, according to the itemized report on budget and actual expenditure for the reconfiguration and refurbishment of the Dag Hammarskjöld Library Building, no expenditures were made against the initial budgets of $40,000 for security/signage, $150,000 for acceleration/expediting and $363,636 for project contingency. Similarly, the final cost of insurance was $71,505 as opposed to an initial project budget of $129,892. In addition, with regard to work related to the third basement classroom of the North Lawn Building, no expenditures were made on acceleration/expediting and project contingency, for which the approved budgets were $75,000 and $409,494, respectively. As a result, even though there was no significant variation in the overall expenditure related to residual capital works and interim solutions in comparison with budget estimates, there were substantial variations in many itemized components.

13. The Administration stated that, throughout the design and construction process, necessary revisions were made as issues with the projects came to light. This resulted in reductions to planned expenditures in some cost components, with the savings redeployed to cover increases in other cost components. Overall, the projects were completed within budget.

14. The Board agrees that initial budgetary estimates might need updates during the course of implementation. The Board notes, however, that no expenditure was incurred against the initial estimates for various component items, which reflects weaknesses in the preparation process for estimates.

15. **The Board recommends that the Administration review the methodology followed for the preparation of estimates to establish norms for the common/general nature of expenses in order to ensure that the estimates for projects are realistic.**

16. The Administration accepted the recommendation and stated that it would continue to refine its methodology for the preparation of estimates to ensure that the estimates for projects were realistic, but that it would also need to continue to respond flexibly to changes stemming from internal and external factors in order to achieve project delivery within the budget approved by the General Assembly.

Change orders

17. As noted in the Board's previous report, there have been a large number of change orders to contracts because the Administration began construction work without waiting for complete and detailed design documents. The use of incomplete designs added some risk and uncertainty.

18. In its previous reports, the Board noted that there had been 4,700 change orders, with a total value of $497 million, as of March 2016. Some 46 change orders, with a cumulative value of $1.75 million related to construction contracts, were approved between April 2016 and February 2017. The Board noted that the Administration had data regarding contract amendments for change orders and for the total payments made for the contract during the period from March 2017 to March 2018 but did not have information on payments made with regard to change orders alone.

19. The Board analysed the data furnished by the Administration and noted that:

- As at 29 January 2018, the contract for security enhancements at the 48th Street Service Drive entrance had been amended 28 times since it was first signed, including 18 amendments since 13 April 2017 to extend the contract to 30 June 2018 that resulted in a price increase of $2.58 million (14.83 per cent of the revised contract value).
- As at 15 November 2017, the contract for the provision of demolition and landscaping services related to the demolition of the North Lawn Conference Building had been amended 13 times since it was first signed, including 10 amendments since 13 April 2017, which led to a price increase of $1.41 million (7.45 per cent of the revised contract value).

20. The Board observed that the signing of 18 contract amendments for 63 change orders in the case of the contract for security enhancements at the 48th Street Service Drive entrance, and 10 contract amendments for 55 change orders in the case of the contract for the provision of demolition and landscaping services related to the demolition of the North Lawn Conference Building, within a short span of 9 months and 7 months respectively, indicated an inadequate formulation of contracts.

21. In response to the Board's query, the Administration replied that the actual time taken to get a change order approved and executed had not been tracked from January 2017 to March 2018 since, upon the close-out of the capital master plan, the team responsible for tracking change orders was not retained.

Arbitration claims

22. There are two ongoing arbitrations related to the capital master plan to which the United Nations is a party. Both arose from arbitrations brought against the main contractor, appointed by the United Nations, by its subcontractors, who were appointed for various components of the capital master plan, such as electrical services and mechanical systems.

23. The first arbitration arose as a result of an arbitration brought against the main contractor by its electrical subcontractor. Under its agreement with the main contractor, the subcontractor claims that the main contractor owes it in excess of $58 million for work it performed under several contracts with the main contractor as

part of the capital master plan. The subcontractor has alleged that throughout the duration of its work, the main contractor, the United Nations and its architects, engineers and other consultants directed an extraordinary number of additions and changes to the scope, character and schedule of its work. The subcontractor claims that, as a direct result of these changes, it was compelled to perform its work out of sequence and in an inefficient manner, resulting in uncompensated costs. The main contractor has denied the subcontractor's claims. Nevertheless, the main contractor filed a notice of arbitration against the United Nations in July 2015, seeking indemnification in the event the main contractor would be liable for the claim from this subcontractor. The United Nations has disputed that, under its contract with the main contractor, the main contractor has the right to be indemnified from such claims. Formal proceedings before the arbitral tribunal have commenced. In May 2017, the United Nations made an application to the arbitral tribunal for early dismissal of the main contractor's claim. The arbitral tribunal determined that the United Nations made a strong showing that the main contractor had no contractual basis to claim indemnification. However, the arbitral tribunal also determined that it would not be appropriate for the tribunal to make a final determination at that stage without permitting a fuller opportunity for the main contractor, the United Nations and the arbitral tribunal to consider the contractual and legal implications on a fuller factual record. To establish that fuller factual record, the parties are currently engaged in the document discovery phase of the arbitration proceeding and further proceedings of the arbitral tribunal are expected to commence later in 2018.

24. The second arbitration arose as a result of an arbitration brought against the main contractor by a mechanical systems subcontractor. In this case, the subcontractor claims that the main contractor owes it in excess of $4 million for work it performed under several contracts with the main contractor as part of the capital master plan. The main contractor has denied the subcontractor's claims. However, as in the first case, the main contractor claims that if it were found to owe any additional sums to its subcontractor, then the liability for such sums should be passed on to the United Nations. The main contractor filed a notice of arbitration against the United Nations in August 2016, seeking indemnification in the event it would be liable for the claims from this subcontractor. The United Nations disputed that the main contractor has the right to be indemnified from such claims under the contract. An arbitral tribunal has been constituted. Formal proceedings before the arbitral tribunal are in preliminary phases and concern complex jurisdictional issues and the production of voluminous documentary evidence.

25. The Administration stated that the Office of Legal Affairs, with the help of outside legal counsel, is defending the interests of the Organization in both cases. The legal fees paid by the United Nations in these two cases through 30 March 2018 amounted to $1.43 million with respect to the arbitration case involving the electrical subcontractor and $125,539 in the case of the mechanical systems subcontractor.

Resourcing the projects to completion

26. In June 2015, the Administration estimated the cost of managing the project to completion at $2.83 million. The Administration reported that the cost of completion as of March 2018 was $6.51 million. A comparison of the two costs is set out in table 2.

Table 2
Cost of completion (estimate versus actual)

	Estimate, June 2015		*Actual, March 2018*	
Component	*Period*	*Cost (United States dollars)*	*Period*	*Cost (United States dollars)*
United Nations staff to close out contracts of main contractor and United Nations staff[a] to manage capital master plan project works	July 2015–December 2016	1 029 000	July 2015–March 2018	1 036 387
Three external contractors[a] to close out contracts of main contractor	July 2015–October 2015	42 000	July 2015–March 2018	192 566
Programme management consultancy costs[b]	July 2015–December 2016	1 762 610	July 2015–March 2018	5 277 524
Total costs for closing out project		**2 833 610**		**6 506 477**

Source: Information provided by the Administration.

[a] All staff/contractors were not deployed for the entire duration.

[b] Costs are net of adjustments of remaining balances from previous periods.

27. The Board observed that all components at completion had higher expenditures than the estimated figures in June 2015 mainly owing to delays in completion.

28. The Administration estimated the cost of completion as of March 2017 at $6.68 million, comprising costs pertaining to staff of $1.09 million, costs pertaining to external contractors to close out contracts of the main contractor of $190,500 and programme management consultancy costs of $5.4 million. The Administration stated that most of the staff costs were incurred before October 2016 and some staff were not deployed for the capital master plan project for the period from July 2015 to October 2016. Therefore, the actual total costs were a little lower than the costs estimated in March 2017.

C. Project schedule and scope

Final completion and certification of work

29. As set out in the Board's previous report, the final stage of completion involves the administrative closure and final settlement of all contracts, in particular the main guaranteed maximum price contracts. As mentioned in the report, the final completion was initially expected in December 2014 with the administrative closure scheduled for June 2015. By March 2017, those dates had slipped to June 2017 and August 2017, respectively. The final completion of works was done by September 2017. However, the Administration stated that the administrative closure could not be done until the litigation cases were concluded, and a decision with regard to this had yet to be taken.

30. The Board noted that the Administration did not have the complete list of completion certificates for all subcomponents of the capital master plan. In addition, the Administration informed the Board that there was no final project completion report for the capital master plan.

Administrative close-out of the capital master plan

31. In his fifteenth annual progress report on the implementation of the capital master plan (A/72/294 and A/72/294/Corr.1), the Secretary-General reported that all construction work for the entire scope of the capital master plan project and its subcomponents, including the interim solutions and post-renovation activities, had

been completed and had achieved the status of final completion as of August 2017. The remaining activities pertaining to the administrative close-out of the contracts, the reconciliation of accounts and the payment of invoices were expected to be concluded by 31 December 2017.

32. The Administration informed the Board that at the time the fifteenth annual progress report was drafted, it had expected to conclude the administrative close-out of the capital master plan contracts, including the payment of invoices, by 31 December 2017, but that it had subsequently informed the Fifth Committee in November 2017 that in view of the ongoing litigation cases and associated costs, the closure of the capital master plan account and the presentation of the final progress report to the General Assembly would be delayed until the conclusion of the litigation cases.

33. The Board observed that the same position regarding litigation existed in August 2017, when the fifteenth annual progress report was submitted by the Secretary-General to the General Assembly. As the litigation was at a very early stage, it was not possible to infer a reasonable timeline for the closure of the capital master plan account at this stage. The Administration accepted the observation by the Board as factually correct.

D. Managing the campus

34. The campus works were all substantially completed and handed over to the United Nations by September 2014. The Administration has been managing and maintaining the campus through the utilization of a combination of United Nations staff and maintenance service contracts.

Managing everyday operations

35. The Facilities Management Service help desk received 16,103 service requests during 2017, which necessitated 18,960 work orders. Of those 18,960 work orders, some 5,700 work orders pertained to heating, ventilation and air-conditioning issues (HVAC) and electrical and plumbing issues. The Administration informed the Board that all service requests raised in 2017 were resolved and closed.

Maintenance arrangements

36. In his fifteenth annual progress report, the Secretary-General reported that, as the Secretariat did not possess in-house technical expertise to maintain the new systems, there was a need to retain the services of specialized commercial vendors. In addition, as stipulated in the vendor operations and maintenance manuals, the new systems required more robust and frequent maintenance checks on a regular basis. The expenditures on maintenance since the biennium 2006–2007 are set out in table 3.

Table 3
Expenditure on maintenance
(Millions of United States dollars)

	2006–2007	*2008–2009*	*2010–2011*	*2012–2013*	*2014–2015*	*2016–2017*
Amount	29.76	32.03	27.15	27.89	29.85	26.60

Source: Administration data.

37. The Board noted that though the newly renovated buildings required less overall maintenance and repair-related efforts, expenditure on maintenance of capital master plan assets had remained more or less constant since the biennium 2006–2007.

38. The Administration stated that in order to adopt a holistic maintenance approach, a preventive maintenance model was implemented in Umoja in October 2017 for all mechanical, electrical and plumbing equipment installed for the capital master plan and selected legacy systems. This allowed for a transparent method of tracking preventative maintenance completion at the equipment level.

39. The Board observed that there was no business intelligence report regarding maintenance actions in the Umoja plant maintenance module, so the generation of that report had to be done manually, which was very time-consuming. A business intelligence report for maintenance actions would help the Administration take informed preventive measures.

40. **The Board recommends that the Administration develop a business intelligence report for maintenance actions in the Umoja plant maintenance module.**

41. The Administration accepted the recommendation.

Long-term asset management

42. In its previous report, the Board had expressed the view that the Administration should expedite efforts to optimize the maintenance approach so as to ensure that the United Nations derived maximum value from the investments in its capital assets. The Administration had noted the concerns expressed by the Board and assured it that steps would continue to be taken to address those concerns through the submission of relevant reports to the General Assembly.

43. In his report on the strategic capital review (A/72/393), the Secretary-General stated that the incremental recapitalization[2] option was the most cost-effective and otherwise beneficial option and would result in the Organization spending between 34 and 54 per cent less over the 50-year useful life of a building as compared with the current "replacement at end of useful life" approach. After examining the report, the Advisory Committee on Administrative and Budgetary Questions was of the view that the report of the Secretary-General did not provide an adequate explanation of the methodology and assumptions used to justify the proposed approach. The Advisory Committee reiterated that the Secretary-General should conduct a thorough cost-benefit analysis of a preventive maintenance (incremental recapitalization) approach, and provide clear information on the financial implications of such an approach (see A/72/7/Add.9). The General Assembly endorsed the recommendation of the Advisory Committee in its resolution 72/262. The Secretary-General intended to submit another report on the strategic capital review to the Assembly at its seventy-fourth session.

Protection of assets

44. The capital master plan assets are the entire buildings, as a turn-key solution, with all the numerous subsystems integrated therein. All capital master plan assets are part of the entire assets of the Organization and are not segregated or separated from the remainder of the items for the purposes of capitalization. After renovation, the renovated buildings and basements provide a more modernized working

[2] Incremental recapitalization is a proactive approach that aims to gradually and systematically perform capital improvements throughout the life of a building, in an attempt to avoid what would otherwise be a larger-scale and higher-risk project.

environment, operated by sophisticated systems and equipment, while also providing improved security for much of the campus. It is essential to manage and protect the renovated buildings and systems in order to maximize the benefits of the renovated campus.

45. The Board, in its previous report, had analysed the physical verification report of 2016 provided by the Administration with respect to the buildings renovated under the capital master plan project, which included the General Assembly, Secretariat, Conference and North Lawn Buildings, and observed that of the 1,000 assets verified during physical verification, 208 assets[3] could not be located and the initial location was not indicated for 78 assets.

46. The Administration informed the Board of the status of the 208 missing assets as follows:

- Of the 150 assets available in 2015 but not found in 2016, 68 had been located, 25 were in the process of being written off and 57 still needed to be located
- Of the 25 assets created in 2015, 8 were found during a physical verification conducted in 2017, 16 assets authorized by the Office of Information and Communications Technology were located overseas and 1 still needed to be located
- Of the 33 assets that had not been located since 2014, 12 had been located and 21 still needed to be located

47. The Administration further stated that of the 78 assets for which the initial location had been missing, 34 were found in 2017, 3 were in the process of being written off and 41 were still not located.

48. The above indicates that, of the 286 assets reported missing or for which the initial location was not indicated during the physical verification of 2016, 138 had been located, 28 were in the process of being written off and 120 were still missing.

49. According to the information furnished by the Administration for the physical verification for the year 2017, of the 1,555 assets which were physically verified, 266 assets were not found. At the time of reporting, the Administration provided an update to the results of the physical verification of 2017 as follows:

- 25 assets were in the process of being written off
- 99 assets still had not yet been located

50. In the absence of detailed information/reconciliation, the Board was unable to reconcile the assets reported as missing in the previous physical verification report of 2016 with those listed in the physical verification report of 2017.

Works of art and other gifts

51. During the implementation of the capital master plan, the works of art and other gifts received by the United Nations from Member States, foundations and individual donors were removed from their original display locations and returned after the completion of the plan. In addition, in its resolution 63/270, the General Assembly requested that the Secretary-General create a gift registry.

52. The Board noted that of the 285 works of art and other gifts, a current location was indicated for 218 items, implying that 218 items were on display, and not 202

[3] Consisting of 150 assets available in 2015 but not found in 2016, 25 assets created in 2015 but not found in 2016 and 33 assets that had not been located since 2014.

items as stated in the list the Administration had provided to the Board during an earlier audit.

53. The Administration stated in July 2018 that the list of 218 gift items provided during an earlier audit had divided a number of items into separate parts for tracking purposes but actually represented 202 total items, which were on display. The list of 202 items provided during the audit in March and April 2018 represented the same inventory of gifts as the list provided at the earlier date.

54. The Board observed that the maintenance of the gift registry was not complete, as required by the General Assembly in its resolution 63/270.

55. The Board further noted that the Administration did not carry out periodic physical verifications of gifts and art installations.

56. **The Board recommends that the Administration maintain an updated registry of works of art and gifts and carry out their physical verification annually to assure their existence.**

57. The Administration accepted the recommendation and stated that it was in the process of enriching and integrating the gift registry into the existing computer-aided facility management system, and would be executing a physical inventory in the coming months.

58. The Administration also stated that accountability for the custody of assets lay with the head of the department or office concerned. The physical verification exercise was a joint effort between the department or office responsible for the property and the team conducting the actual physical verification; for overseas assets, it was the responsibility of the department or office concerned to provide proof of existence. The Administration assured the Board that the Office of Central Support Services would continue to work alongside the departments and offices to improve the current framework and strengthen processes and internal control mechanisms for the protection, recording and monitoring of assets and would continue to provide support, guidance, training and tools to ensure that proper recording and monitoring of assets was maintained.

E. Maximizing the benefits of the renovated campus

Energy efficiency

59. The capital master plan targeted a minimum 50 per cent reduction in energy consumption and 40 per cent reduction in water consumption. Several energy-efficient features have therefore been incorporated into the capital master plan, including open offices, energy-conserving cooling, energy-efficient lighting throughout the campus and exterior glazed surfaces in the renovated buildings.

60. The Advisory Committee on Administrative and Budgetary Questions, in its fifteenth annual progress report on the implementation of the capital master plan (A/72/536), requested the Secretary-General to provide in his next progress report comprehensive data on the quantifiable efficiency gains achieved, in terms of both energy usage and costs of utilities, based on the actual data gathered. According to the fifteenth annual progress report of the Secretary-General (A/72/294 and A/72/294/Corr.1), quantifiable efficiency gain was stated as 76 per cent for steam and 14 per cent for electricity, with an overall gain of 59 per cent for both steam and electricity for the year 2016. However, reduction in the consumption of water was not reported.

61. The data relating to the usage of steam and electricity for 2006 and 2017, along with utility bills with respect to electricity, steam, gas and water relating to 2017,

were provided to the Board. However, the Administration could not provide supporting documents with respect to the 2006 data. The information provided by the Administration regarding the 2006 data differed from the data presented in the fifteenth annual progress report of the Secretary-General. According to the information provided by the Administration, the steam consumption for 2006 was 476.62 million kBtu.[4] However, according to the fifteenth annual progress report, the steam consumption for 2006 was 400.52 million kBtu (see A/72/294/Corr.1). In view of the discrepancy, the efficiency gains claimed in the fifteenth annual progress report require review. The Administration accepted the Board's observation and stated that the 2006 data it provided had come from an energy audit conducted in 2011.

62. The Administration stated that the energy savings in 2017 were 68 per cent in the case of steam consumption and 20 per cent for electricity consumption with an overall energy savings of 55 per cent. Therefore, the energy efficiency achieved is apparently in line with the set target, though the energy savings have fallen from 59 per cent in 2016 to 55 per cent in 2017.

63. To monitor energy consumption and report on energy efficiency, an Energy Dashboard and Reporting Tool has been implemented as part of the capital master plan to measure and report in real time on energy usage at the aggregate level as well as at the equipment level. It became operational in January 2016, but the reports generated were not accurate owing to the use of an inaccurate conversion factor. The Administration informed the Board that after the conversion factor was corrected, the reports generated in March 2018 were accurate.

64. The Board observed that the Energy Dashboard and Reporting Tool could be used to monitor energy consumption at the equipment level. The Tool, therefore, would be highly useful in analysing and regulating the patterns of energy consumption at the floor/building level.

65. **The Board recommends that the Administration explore the utility of the Energy Dashboard and Reporting Tool with regard to monitoring the energy consumption of floors and buildings so as to further reduce energy consumption wherever possible. The Board further recommends that the Administration report on reductions in consumption of water as well.**

Accessibility

66. In his thirteenth annual progress report on the implementation of the capital master plan (A/70/343), the Secretary-General stated that the capital master plan improved physical accessibility to the Headquarters compound and made it fully accessible to individuals with disabilities. The Board, in its previous report (A/72/5 (Vol V)), recommended that, in order to identify gaps in the infrastructure of the capital master plan, a user survey on the effectiveness of the accessibility features should be conducted.

67. In August 2017, a survey was publicized on iSeek[5] for persons with disabilities requesting feedback regarding their experiences with accessibility features. The feedback from the survey on facilities, security, catering and conference services pointed out the difficulties faced by users with regard to accessibility features. The Administration stated that the capital master plan designs included accessibility features required by both local authorities and the Americans with Disabilities Act (ADA); however, it would consider the feedback provided by the survey and perform

[4] "Btu" stands for "British thermal unit". Each Btu equals the amount of heat needed to raise 1 pound of water 1 degree Fahrenheit; "kBtu" means "one thousand British thermal units".

[5] The Intranet website for United Nations staff.

an assessment of what could be feasibly and reasonably achieved to address the requirements expressed in the feedback.

68. During the site visit, the Board noticed that in the fourth floor cafeteria a chair, a welcome board and a metal detector frame were placed near the elevator for persons with disabilities. As a result there was very limited space to manoeuvre a wheelchair. The Administration stated that this was an unusual occurrence and signage would be posted to ensure those areas were kept clear of any obstruction.

69. The Administration informed the Board that the capital master plan complied with the then-relevant and applicable 1991 ADA Standards for Accessible Design at the time the plan was prepared, and remained in compliance with that code. The 2010 ADA Standards for Accessible Design came into effect after the capital master plan designs had been completed and renovation works had already started. Additional assessments would be needed to identify any accessibility features that were required by the 2010 Standards. The Board noted that the United Nations, as a model organization, advocates accessibility to all, and that the Administration could conduct a gap analysis with respect to the 2010 Standards and endeavour to achieve compliance with them.

70. **The Board recommends that the Administration analyse the responses to the survey on iSeek and take remedial measures.**

71. **The Board also recommends that the Administration examine the requirements of the 2010 ADA Standards for Accessible Design and take necessary steps on a progressive basis towards compliance with those standards to ensure accessibility to all individuals with disabilities.**

72. The Administration accepted the recommendations.

F. Recreational facilities

73. On 12 January 2017, the International Olympic Committee offered to provide a financial contribution towards the construction of recreational facilities at United Nations Headquarters. The offer was accepted by the Secretary-General subject to the regulations, rules and policies of the United Nations. This contribution was to be used to finance the creation of recreational facilities consisting of a gym in the second basement area of the North Lawn building and an outdoor recreation area to be located on the North Lawn of the United Nations Headquarters campus. The United Nations was solely responsible for the supervision, direction and control of the implementation of the project to construct the recreation facilities.

74. In accordance with regulation 3.12 of the Financial Regulations and Rules of the United Nations, voluntary contributions, whether or not in cash, may be accepted by the Secretary-General provided that the purpose for which the contributions are made are consistent with the policies, aims and activities of the Organization and provided that the acceptance of voluntary contributions that directly or indirectly involve additional financial liability for the Organization shall require the consent of appropriate authority. Rule 103.4 (b) of the Financial Regulations and Rules stipulates that the appropriate authority in cases of voluntary contributions, donations or gifts that directly or indirectly involve additional financial liability for the Organization is the General Assembly.

75. In its report on the fourteenth annual progress report on the implementation of the capital master plan (A/71/541), the Advisory Committee on Administrative and Budgetary Questions stated that assurance was required as to whether the acceptance of the gift from the International Olympic Committee was in full compliance with the Financial Regulations and Rules of the United Nations; the implementation of the

facility would be in full compliance with United Nations procurement, policies, procedures and practices; and the utilization of space in the basement of the United Nations Headquarters building for the recreation facility would not impede the current and future use of that space. In addition, the Advisory Committee stated that the General Assembly should be provided with detailed information regarding any direct or indirect financial implications arising from the implementation of the recreational facilities. The Advisory Committee was of the view that the implementation of such facilities required prior approval by the Assembly.

76. The Administration informed the Board that the International Olympic Committee had donated an amount that funded the installation of an exterior pavilion (basketball court, shuffleboard court and pavilion landscaping) at the north end of the North Lawn, the installation of a gym facility in the second basement level of the North Lawn and related maintenance coverage. The Administration informed the Board that the recreation facilities had been constructed; however, the gym was not yet functional.

77. The status of the budgeted and actual expenditure incurred for the creation of these facilities are shown in table 4.

Table 4
Recreational facilities
(United States dollars)

Component	*Budget*	*Actual expenditure as at 31 March 2018*
Pavilion	614 758	555 595
Staff gym	508 477	544 906
Subtotal, pavilion and staff gym	**1 123 235**	**1 100 501**
Seven-year maintenance cost (projected)	376 764	399 498
Total cost of recreational facilities	**1 500 000**	**1 500 000**

Sources: Cost report of the International Olympic Committee as at 20 December 2017; Administration data.

78. It was also mentioned that the insurance costs of the recreational facilities were covered under the existing United Nations insurance policy as the facilities were a part of the existing complex. However, the Administration did not account for the heating and water requirements of the facility. The Administration informed the Board that the anticipated useful lives of these facilities was fixed at seven years, as the assets created under recreational facilities were specialized in nature. The facilities would be reviewed on an annual basis for any potential modifications to their useful lives.

79. In order to calculate the cost to maintain the facilities, the Administration considered the cost of custodial cleaning only ($1,761 per month for the gym and $2,759 per month for the pavilion). Accordingly, the total custodial cleaning cost for seven years would be $379,680, without adjustment for inflation. The Administration mentioned that the remaining amount of the donation would be used to fund the cleaning cost.

80. The Administration also informed the Board that the facilities would maintain their current functions after seven years and that there were no plans to scrap these facilities after seven years.

81. In the Board's experience, the cost of maintaining an asset increases with use, and it noted that the Administration had not made any estimates regarding the cost of maintaining these assets other than with regard to their cleaning. The recreation facilities donated by the International Olympic Committee, therefore, were not cost neutral. The Administration did not request the approval of the General Assembly prior to its acceptance of the donation from the International Olympic Committee, as required by regulation 3.12 and rule 103.4 (b) of the Financial Regulations and Rules.

82. The Administration stated that the Advisory Committee on Administrative and Budgetary Questions had recommended that the General Assembly take note of the facility on an ex post facto basis and said that this recommendation was now under consideration by the Assembly. Therefore, the Administration was of the view that it did not need to return to the Assembly to seek its approval.

83. **The Board recommends that the Administration conduct a comprehensive assessment of the maintenance costs, taking into account all subcomponents of maintenance, such as repair and upkeep of the recreational facilities.**

84. **The Board further recommends that the Administration make adequate arrangements for funding the operational and maintenance costs of assets created as a result of the donation from the International Olympic Committee.**

85. The Administration concurred with the recommendations and stated that the current donation from the International Olympic Committee covered the maintenance costs of the facilities for their seven-year useful lives. The Administration stated that it would continue to reach out to the International Olympic Committee with regard to future funding requirements of maintenance costs beyond seven years and explore other options for supplementing available funds, as appropriate.

G. Acknowledgement

86. The Board wishes to express its appreciation for the cooperation and assistance extended to its staff by the Under-Secretary-General for Management and members of his staff.

(*Signed*) Rajiv **Mehrishi**
Comptroller and Auditor General of India
Chair of the Board of Auditors
(Lead Auditor)

(*Signed*) Mussa Juma **Assad**
Controller and Auditor General of the United Republic of Tanzania

(*Signed*) Kay **Scheller**
President of the German Federal Court of Auditors

24 July 2018

Annex I

Status of implementation of recommendations up to the year ended 31 December 2016

				Status after verification			
No.	*Report reference*	*Summary of recommendation*	*Action reported by the Administration*	*Board's assessment*	*Fully implemented*	*Under implementation*	*Overtaken by events*	*Not implemented*
1	Sixty-eighth session/ paragraph 77	The Board recommends that the Administration adopt a whole life-cycle asset investment strategy and assess costed options for the through-life maintenance of the Headquarters buildings.	Pursuant to section VI of General Assembly resolution 70/248 B, the Secretary-General submitted an updated version of the report on the strategic capital review (A/72/393), which proposed employing an incremental recapitalization approach to capital maintenance and provided an update on the governance structure for capital construction projects on near-term proposed capital projects, as well as information on other considerations such as accessibility, global long-term accommodation requirements and flexible workplace strategies. The Administration intends to submit the next such report to the Assembly at its seventy-fourth session.	As stated by the Administration, the recommendation is under implementation.		X		
2	Sixty-eighth session/ paragraph 82	The Board recommends that the Office of Central Support Services review its ongoing maintenance contracts, based on an assessment of the total scope of facilities management requirements after completion of the capital master plan, and assess the possibilities for obtaining better value from any future strategic commercial relationship.	The Administration is in the process of a bidding exercise for an independent expert to execute assessment of its maintenance approach.	The Administration now plans to undertake the independent assessment of its maintenance approach in late 2018, after a year of Umoja plant maintenance module deployment. Any possibilities for obtaining better value from any future strategic commercial relationship could be carried out after the assessment of its maintenance approach. This recommendation is therefore treated as being under implementation.		X		

No.	Report reference	Summary of recommendation	Action reported by the Administration	Board's assessment	Status of implementation: Fully implemented	Under implementation	Overtaken by events	Not implemented
3	Sixty-ninth session/ paragraph 25 (b)	Apply independent project assurance to all major projects. There is currently no established approach to providing independent project assurance in the United Nations.	In addition to establishing both generic and project-specific governance structures for individual large-scale projects, the Administration has also engaged two independent firms to provide independent risk management/ project assurance services.	As the Administration has stated that it has also engaged two independent firms to provide independent risk management/project assurance services, this recommendation is considered implemented.	X			
4	Sixty-ninth session/ paragraph 25 (d)	Commit to visible senior management leadership on the flexible workplace project. Experience suggests that, like all change initiatives that have an impact on the day-to-day working environment, senior management leading by example will be vital in gaining staff buy-in and securing the intended benefits.	The new Administration has confirmed that flexible workplace arrangements are an integral part of reforms and the General Assembly, in December 2017, approved the project plan for the completion of the remaining 26 floors in the Secretariat Building put forward by the Secretary-General in his report (A/72/379). The project is fully on schedule and two leases (the United Nations Federal Credit Union and the Innovation Buildings) will be vacated in 2018 as planned. Senior management are supportive of the project, and in some cases heads of departments or offices have approached the team to implement flexible workplace arrangements in their areas earlier than planned. It is apparent that as managers see the arrangements being implemented initial misgivings have been laid to rest.	The Administration stated that besides publishing materials related to flexible workplace change management and staff engagement from May 2015 to June 2016, department/ office town hall meetings have been conducted since August 2017 (27 meetings as at 5 April 2018). In view of the progress/ achievement the recommendation is considered implemented.	X			
5	Seventieth session/ paragraph 17 (b)	Managing and reporting that the project's outcomes have been delivered, including financial and non-financial benefits expected and achieved from the investment in the capital master plan.	The Administration has been reporting on efficiency gains and achievements in energy efficiency, code compliance, accessibility and safety in its annual progress reports.	In view of the progress made and achievements reported, the recommendation is considered implemented.	X			

No.	Report reference	Summary of recommendation	Action reported by the Administration	Status after verification: Board's assessment	Fully implemented	Under implementation	Overtaken by events	Not implemented
6	Seventieth session/ paragraph 17 (c)	Accelerating closure of the remaining capital master plan contracts to increase certainty regarding final project costs and to release any potential savings.	Closure of the remaining contracts has been concluded, with the exception of the litigation activities still in progress.	As there are still contracts pending closure, the recommendation is under implementation.		X		
7	Seventieth session/ paragraph 17 (d)	Reporting the full amount of any savings arising from contract closure and introducing appropriate governance mechanisms to determine the use that can be made of such savings, including specific consideration of returning savings to Member States.	Information on savings from the cancellation of obligations from prior years and their utilization is provided on a routine basis and will be included in the fifteenth annual progress report on the capital master plan. Savings can be realized only after all of the work and related operations have been fully completed, the contracts have been closed and all accounts have been fully reconciled. If any uncommitted balances remain after closure of all contracts, they will be returned to Member States. The contractual litigation is still in progress.	As stated by the Administration, the recommendation is under implementation.		X		
8	Seventy-first session/ paragraph 17 (c)	Focus on realizing the full potential benefits from the investment made in the capital master plan and ensure that optimal use is made of the new modern working environment to reduce the use of costly rented accommodation.	The Administration stated that the Daily News Building was vacated in 2017 and the United Nations Federal Credit Union Building was vacated as of April 2018, and activities to vacate the Innovation Building in September 2018 are in progress.	The stated benefits of vacating the buildings are the outcome of the flexible workplace project, which is intended to create additional workspace in the Secretariat Building. Since the flexible workplace project is still not complete and all buildings have yet to be vacated, the recommendation is considered to be under implementation.		X		
9	Seventy-first session/ paragraph 17 (d)	Perform a detailed analysis of operational data and building malfunctions to help it develop a strong business case for submission to the General Assembly in support of its	The Office of Central Support Services is in the process of a bidding exercise for the services of an independent expert to execute an assessment of its maintenance approach.	As stated by the Administration, the recommendation is under implementation.		X		

No.	Report reference	Summary of recommendation	Action reported by the Administration	Board's assessment	Status after verification: Fully implemented	Under implementation	Overtaken by events	Not implemented
		proposed annual and longer-term maintenance budgets.						
10	Seventy-first session/ paragraph 17 (e)	Present a preliminary analysis of utilities data following the closure of the North Lawn Building to the General Assembly during the main part of its seventy-first session and a full year of data, ready for audit, during the resumed part of the session.	The requested analysis was presented in the Secretary-General's fifteenth annual progress report on the implementation of capital master plan (A/72/294 and A/72/294/Corr.1). Comparison of energy consumption between 2006 and 2017 was provided in table 2 of the report, which included energy usage and efficiencies. Updated data on the costs and monetary savings were provided in table 3 of the report.	As the analysis of utilities data has been presented to the General Assembly in the fifteenth annual progress report, the recommendation is considered implemented.	X			
11	Seventy-second session/ paragraph 62	The Board recommends that the Administration make efforts to operationalize the Umoja plant maintenance module to enable an early review of its maintenance practices. This would enable the Administration to prepare a long-term maintenance plan covering any gaps in its maintenance efforts.	The Administration stated that the recommendation is under implementation.	The Administration stated that the Umoja preventive maintenance module was implemented in October 2017 and that it plans to undertake an independent assessment of its maintenance approach in late 2018, after a year of Umoja plant maintenance module deployment. The Board, therefore, considers this recommendation to be under implementation.		X		
12	Seventy-second session/ paragraph 69	The Board recommends that the Administration take steps to strengthen the internal control for protection of assets, and for their proper recording and monitoring.	The recommendation is under implementation. The Office of Central Support Services continues to work on strengthening internal controls in the area of property management.	The Board has noted continuous weakness in this area, which is discussed in the present report. The recommendation is considered to be under implementation.		X		
13	Seventy-second session/ paragraph 78	The Board recommends that the Administration resolve issues associated with the Energy Dashboard and Reporting Tool as related to recording and reporting on usage of steam, gas	The recommendation is still under implementation.	The Administration further stated that incorrect reporting by the Energy Dashboard and Reporting Tool occurred owing to the use of an incorrect conversion factor.		X		

No.	Report reference	Summary of recommendation	Action reported by the Administration	Board's assessment	Status after verification: Fully implemented	Under implementation	Overtaken by events	Not implemented
		and water to enable real-time monitoring of all utilities.		Subsequently, the issue was taken up with the vendor and, after the correction of the conversion factor, the reporting is now more accurate. The accuracy of the reporting and its utilization can be examined in the coming period; therefore this recommendation is considered to be under implementation.				
14	Seventy-second session/ paragraph 79	The Board recommends that the Administration carry out a feasibility analysis on the parameters set in the consultant's report of April 2015 to identify areas for improving energy efficiency, after taking into consideration the enhanced flexibility offered by the implementation of the capital master plan.	The Administration will explore the potential of the Energy Dashboard and Reporting Tool in providing additional monitoring to improve energy efficiency.	As stated by the Administration, the recommendation is under implementation.		X		
15	Seventy-second session/ paragraph 83	The Board recommends that the Administration conduct a user survey on the effectiveness of the accessibility features in order to identify gaps, if any, in the infrastructure created as part of the capital master plan.	The user survey was carried out. While work on ensuring that action is taken to address the issues that are highlighted will be ongoing (and will feed into the recommendation related to paragraph 67 of A/73/5 (Vol. V)), the Administration is of the view that this prior-period recommendation has been implemented and should be closed.	We acknowledge the updated response provided by the Administration in July 2018 and we would verify the progress during the next audit.		X		
16	Seventy-second session/ paragraph 95	The Board recommends that the Administration regularly monitor productivity gains while ensuring reduction in space requirements.	The recommendation is under implementation and will continue to be integral to the flexible workplace project.	As the flexible workplace project is not completed, this recommendation is considered to be under implementation.		X		
	Total	**16**			**4**	**12**		
	Percentage				**25**	**75**		

Annex II*

Lessons from the capital master plan

* The present annex is reproduced without formal editing.

Lessons from the Implementation of United Nations Capital Master Plan

A paper by the United Nations Board of Auditors

June 2018

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Foreword

Capital Master Plan was conceptualised in 2000, the construction began in 2008, all the construction related activities have been completed as of September 2017 and administrative closure of CMP has not been done due to the arbitration claims.

Since 2004, the project has been audited annually by the Board of Auditors and being reported to General Assembly. In December 2014, a paper was presented on lessons from the United Nations Capital Master Plan based on implementation of twelve years when substantial completion has been done in respect of Secretariat, conference and General Assembly Buildings. The paper identified lessons which can be utilised in future capital projects like Strategic Heritage Plan.

As the construction activities have now been finally completed and majority of the payments have been made, it is worthwhile to review the complete implementation of the CMP as it allows to look back at the planned objectives, achievement of those, benefits accrued and the project management in an objective manner. The objective of this report is to arrive at the lessons learnt from the various experiences during the implementation of the capital master plan which can be utilised in large infrastructure projects.

1. Introduction

The United Nations Headquarters complex in New York was largely built during the period 1949–1952. A building conditions assessment conducted in 1998–1999 reviewed the physical condition of the United Nations Headquarters complex and pointed out that major repair and refurbishment was required. The General Assembly authorized the preparation of a comprehensive design plan and cost analysis to include all viable alternatives. After examining various options regarding duration and cost of the project as well as source of funding, General Assembly approved the scope and funding of Capital Master Plan in 2003.

The Capital Master Plan (CMP) was envisaged to start in October 2004 with a construction duration of five years to bring the United Nations compound into the 21st century and to result in a safer, more modern and more energy efficient Headquarters complex of United Nations. The CMP aimed to refurbish the United Nations Headquarters complex preserving architectural integrity and original design so that it is

- Energy efficient
- Compliant to all local codes and manuals
- Accessible to all persons
- Meeting all reasonable, modern day security requirements

2. Achievement of objectives

Status of planned objectives

Activities	*Scheduled completion*	*Completion as reported in Annual Progress Report*	*Final completion as per the records*
Secretariat Building	Early 2012	Mid-2012	September 2015
Conference Building	Mid-2011	Early 2013	March 2013
General Assembly Building	Mid-2013	Mid-2014	October 2015
South Annex Building	Early 2012	Suspended	Suspended
Dag Hammarskjöld Library Building	Early 2013	Suspended	Suspended
Closure of the Office of the Capital Master Plan and handover to the Office of Central Support Services	Mid-2015	July 2015	July 2015
Landscaping of North Lawn	Late 2015	Mid-2017	September 2017
Security-related work at 42nd and 48th Streets	Late 2016	Mid-2017[b]	September 2017

Source: Fifteenth Annual Progress Report of Secretary General (A/72/294) and Administration data.

All construction work for all scopes of the CMP project have been completed and achieved the status of final completion in September 2017. The remaining activities, viz. the administrative close-out of the contracts, reconciliation of accounts and payment of invoices, which were expected to be concluded by 31 December 2017 could not be concluded due to pending arbitration claims.

Significant achievements

The fifteenth Annual Progress Report (A/72/294) of Secretary General on the implementation of CMP reported following benefits of CMP to the General Assembly. The significant achievements in respect of newly renovated facility were reported as:

- **Energy efficiency**

Quantifiable efficiency gain of 76 per cent on steam and 14 per cent on electricity with overall gain of 59 per cent for the year 2016 as compared with 2006 baseline data.

- **Compliance to codes**

The United Nations Headquarters complex is compliant with building and fire & safety codes of the host country.

- **Safety and Security**

While preserving the original historic design of the Headquarters complex, the facilities were modernized to meet current safety, security and technological standards

- **Accessible to all person**

The newly renovated facility is accessible to all individuals with different abilities.

- **Flexible workspace**

Flexible workspace was not part of CMP. With the objective to make the most efficient use of office space and improve productivity, the concept of flexible workplace was initiated as a separate project in CMP in 2014 and is still being implemented. If implemented well, it has a potential of accommodating more number of employees and thereby savings on rent being paid on leased premises.

The Capital Master Plan was a big infrastructure-related project which had substantial monetary involvement and was implemented in a fairly long time period.

A paper on lessons learnt from the United Nations Capital Master Plan has already been presented by the United Nations Board of Auditors in December 2014. These hold good as on date. The current paper is in addition to the previous paper and at times amplifying those lessons which become even more relevant at the time of the closure of the capital master plan.

3. Planning

The United Nations headquarters complex in New York was constructed during 1949–1952 which is comprised of five main buildings. It was realised that the structures were aging and require major repair and refurbishing. They had become energy inefficient and were no longer conforming to current safety, fire and building requirements. Also, the complex was deficient in terms of meeting modern day security requirements.

In 1999, the United Nations contracted an engineering firm to submit the CMP study outlining the work required for a safe, secured, appropriate and energy efficient facility. During January 2004 to March 2006, design development work was completed. In December 2006, the General Assembly approved a budget of $1,876.7 million for CMP. In May 2008, the construction of North Lawn Building marked the beginning of implementation of CMP. As per the accelerated strategy, the project was to be completed within six years.

All construction work for the entire scope of CMP were completed by September 2017. Administrative closure of the project and all related works were expected to be completed by 31 December 2017, however, in view of the ongoing litigation cases and associated costs, it is delayed until the conclusion of the litigation cases. The anticipated final cost of the project now stands at $2,309.3 million.

We observed the following in respect of planning of CMP:

(a) Secretary General presented a proposed course of action regarding CMP to the General Assembly in 2000 and construction work began in 2008. Thus, it took almost 8 years for planning the CMP project.

(b) While the work in respect of three of the five buildings in the original scope of the project were completed, the work in respect of renovation of South Annex and Dag Hammarskjold library buildings was suspended due to security issues.

(c) There have been 4,746 change orders, with a total value of $498.75 million related to CMP work as at February 2017. The Administration began with construction work using designs which were changed during the course through change orders. This approach added risk and uncertainty both in terms of cost and time taken for the work.

(d) The substantial work of Secretariat under CMP was completed in 2013 while the implementation of flexible work place was planned in 2014. Due to not envisaging flexible work place as a part of CMP, it was not included in the initial planning of CMP. As a result, benefit realisation in the form of vacation of leased buildings was delayed.

Learning opportunities

- United Nations took five years to commence the execution of CMP after obtaining approval of the General Assembly for the project. Although United Nations did not have technical capabilities to assess the requirements and prepare the design of CMP and faced the challenge of selecting from different alternatives pertaining to design, project period and funding pattern, the period of planning should not have been so long.
- Further, though the CMP project was approved in December 2006. The security requirements, based on which renovation of two buildings the Library and the South Annex were excluded from CMP, could have been assessed at the time of planning.
- Planning of different activities under CMP with detailed designs could have reduced the need for many change orders.
- The variation in terms of project scope and increase in budget as well as delay in completion of project points towards scope of improvement in planning. In view of the magnitude of the project and for smooth implementation the scope of the project, timeline for completion of individual works and costs associated could have been better planned and diligently executed.
- The inclination to overestimate the budget to provide flexibility at a later date needs to be curbed to ensure initial estimates are prepared realistically taking into account only the actual work involved and its commensurate expenditure.

4. Implementation

The CMP involved renovation of five buildings and also involved construction and demolition of North Lawn Building and relocation of approximately 6,000

personnel to leased offices. However, the work of renovation of the south annex and Dag Hammarskjold library Buildings was suspended in 2013 for security reasons and taken out of the scope of CMP as per General Assembly resolution dated 2 April 2015.

The Secretary General reported in fifteenth Annual Progress Report that, as of August 2017, all construction work of CMP has been completed and the final projected cost of the CMP was $2,150.4 million out of which 99.9 percent of the funds have been expended. The remaining activities of administrative close out of the contracts, reconciliation of accounts and payment of invoices were expected to be concluded by 31 December 2017.

All construction work for the entire scope of CMP has been finally completed by September 2017. The anticipated final cost of CMP stands at $2,309.3 million. The administrative closure of the CMP cannot be done till conclusion of two ongoing arbitrations pertaining to the project.

We observed the following in respect of planning of CMP:

(a) The project budget initially stood at $1,876.7 million, which was revised to anticipated final cost of $2,150.4 million as at August 2017, whereas the anticipated final cost is $2,309.3 million as at April 2018. The cost overrun was mainly due to changes in the construction strategy and the resultant increase in professional fees, higher swing space costs, unforeseen events such as revised and more costly security standards and the damaging impact of Storm Sandy.

(b) The General Assembly removed the renovation of two buildings the Dag Hammarskjold library and the South Annex from the scope of the capital master plan (Resolution 69/274 A). Though, the project scope was reduced substantially (the renovation of three buildings instead of five), the cost of the project was in fact more than the planned budget.

(c) Further, the CMP work was to be completed in 2014, however, completed in 2017 i.e. with a 3 years' delay against scheduled completion date.

(d) There are two ongoing arbitrations related to the CMP to which the United Nations is a party. Both arbitrations were brought against the main contractor by its subcontractors on the basis of change orders in the CMP works.

Learning opportunities

- Though there were some extraneous factors which led to cost escalation there was also a reduction in scope of work in terms of renovation of Dag Hammarskjold library and south annex building indicating that the CMP project could have been completed in the given budget.

5. Project Management

The Project Management of CMP included the activities of planning, management of implementation and remaining activities related to administrative close out. Proper management of a project like CMP, which involves substantial budget and takes a long time for implementation, is very important.

(a) The project management of such a complex project is a challenging task and require a planned approach and an adapted implementation as per required changes. However, the delayed execution and consequent cost escalation pointed towards further scope of improvement in project management.

(b) While the newly renovated buildings require less overall maintenance and repair, the newly installed sophisticated systems and equipment require more

consistent and costly servicing. However, the Administration does not have adequate human resources and budget for basic preventive maintenance necessary for upkeep of modern equipment.

(c) There has been no progress in developing new proposals to renovate the Library and South Annex Buildings, which were removed from the scope of the capital master plan.

There is a concern about internal controls regarding safeguarding of assets. According to the information furnished by Administration for the physical verification for the year 2017, 266 assets were not found out of 1,555 assets which were physically verified. Administration subsequently informed that the updated results from physical verification 2017 are as follows:

- 25 assets under write-off process
- 99 assets still to be located

(d) The office of CMP established for the management of CMP was closed in July 2015 and the remaining activities have been taken over by Office of Central Support Services since then. Facility Management Services (FMS) resources were required to work on the remaining project, with consultants, in addition to their regular FMS day to day functions.

Learning opportunities

- The project management of CMP by detailed planning, timely execution and responding to extraneous factors could have controlled the delay in completion of the project and consequent cost escalation.
- The newly renovated buildings require less maintenance and repair related efforts however, the maintenance activities are being done in a reactive manner. The maintenance expenditure should have been reduced by adopting suitable maintenance approach consequent to CMP.

6. Outcomes

The Secretary General reported in fifteenth Annual Progress Report that the CMP provided a newly renovated facility that is accessible to all individuals, energy efficient, free of hazardous materials and compliant with the building, fire and safety codes of the host city and that meets all reasonable, modern-day security requirements.

(a) **Energy efficiency**

The energy consumption reduced substantially by more than 50 per cent compared with the total consumption in 2006. However, EDART [6] which was developed for monitoring of energy efficiency, is being used only as a secondary source of information and the Administration is not currently using EDART for monitoring energy efficiency building and floor wise.

(b) **Meeting all reasonable, modern day security requirements**

The Administration claimed that the project met its objectives of honouring and preserving the original historic design of the Headquarters complex, while at the same time modernizing the facilities to meet current safety, security and technological standards.

[6] Energy Dashboard and Reporting Tool.

(c) **Flexible workspace (no. of employees, saving on rent paid)**

With the objective to make the most efficient use of office space and improve productivity, the implementation of flexible workplace was included as a separate project in CMP in 2014 and continued to be implemented after all CMP activities have been completed.

Learning opportunities

- The projects like CMP provides the opportunities for making changes in the existing workspace according to needs of the organization, however, at the planning and design phase of CMP, measures like flexible work place was not included in CMP as this concept came later on. For future projects incorporating flexible work plan at the initial planning and design stage will ensure economy as well as savings in time and effort.

7. Conclusion

The CMP project aimed at modernising and improving the operating efficiency of United Nations Headquarters buildings. The CMP provided a newly renovated facility that is accessible to all individuals, energy efficient, free of hazardous materials and compliant with the building, fire and safety codes of the host city and that meets all reasonable, modern-day security requirements.

Overall implementation of CMP could be completed in terms of achieving energy efficiency, preserving architectural integrity etc. The incidences of delayed implementation, cost escalation etc. indicate that there are areas where more detailed and holistic planning, budgeting may contribute to more effective implementation and project management for similar projects to achieve planned outcomes in a timely and cost effective manner.

18-11712 (E) 260718